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FLYING IN THE DARK: HOW A LEGAL LOOPHOLE ENDANGERS CRITICAL INFRASTRUCTURE

MICHELLE TONELLI*

I. INTRODUCTION

UNMANNED AIRCRAFT SYSTEMS are not new. Unmanned aircraft systems (UAS) have been used since the 1800s.¹ In 1896, Samuel Pierpont Langley, then Secretary of the Smithsonian Institution, successfully flew his Aerodrome Number 5 near Quantico, Virginia.² It was the world's first successful UAS flight. While not as sophisticated as the UAS used today—it had to be launched from a spring-actuated catapult on a houseboat—it flew 3,300 feet at approximately twenty-five miles per hour.³ By the 1920s, the military began experimenting with UAS, and in the 1930s hobbyists began using UAS.⁴ What is new about UAS is the stratospheric rise in their types, abilities, availability, and sizes within the last few years. Currently, about \$6 billion per year is spent on UAS, and by 2018 that amount could reach \$12 billion.⁵ It is predicted that there may be as many as 30,000 UAS

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¹ John Villaseñor, *Observations from Above: Unmanned Aircraft Systems and Privacy*, 36 HARV. J. L. & PUB. POL'Y 457, 462 (2013); see also LOUIS H. HERTZ, THE COMPLETE BOOK OF MODEL AIRCRAFT SPACECRAFT AND ROCKETS 178–79, 184, 187–89 (1967).

² Villaseñor, *supra* note 1, at 462; see also *Langley Aerodrome Number 5*, SMITHSONIAN NATIONAL AIR AND SPACE MUSEUM, <http://airandspace.si.edu/collections/artifact.cfm?id=A19050001000> [<http://perma.cc/RL6K-E2T9>] (last visited Nov. 19, 2015) [hereinafter *Langley Aerodrome*].

³ *Langley Aerodrome*, *supra* note 2.

⁴ See Villaseñor, *supra* note 1, at 463.

⁵ See Saurabh Anand, *Hovering on the Horizon: Civilian Unmanned Aircraft*, 26 NO. 1 AIR & SPACE LAW. 9, 10 (2013).

in the National Airspace System (NAS) by 2020.⁶ With each technological advance, a new use for UAS is created and UAS become less expensive. As the cost continues to decrease and uses increase, the proliferation of UAS in the NAS will only continue. Thus, it is crucial that UAS are integrated into the NAS in a responsible manner that balances the free use of UAS with security.

Using the law to one's advantage is not new.⁷ As soon as the first law was written, the need was created to work around and within that law. Finding the right path to achieve a goal, whether positive or negative, was probably what the first client asked of the first attorney. The oft-misquoted line from Henry VI, Part II comes to mind: "The first thing we do, let's kill all the lawyers."⁸ Although the line is often used to denigrate lawyers and their profession, in reality Shakespeare was complimenting lawyers for protecting the rule of law.⁹ It is not the lawyer nor even the loopholes that cause the problems; it is the exploitation of the loopholes that creates havoc. However, before one can understand the potential havoc caused by the exploitation of the rule of law, one must begin with an understanding of the law.

⁶ *Id.*

⁷ The author shies away from using the term "lawfare" in this article. The term comes with several meanings and political leanings that the author fears will simply cause confusion. If lawfare were applied here, the author would focus on retired Major General Charles Dunlap's definition of the word: "the strategy of using—or misusing—law as a substitute for traditional military means to achieve a warfighting objective." Charles J. Dunlap, Jr., *Lawfare Today . . . and Tomorrow*, 87 INT'L L. STUD. 315, 315 (2011). Although he applies the term in the military realm, the author does not think it is a long leap to apply it to terrorism—whether international or domestic. Staying within the bounds of the law for as long as possible will only increase the likelihood of a successful terrorist attack. However, because of the baggage that accompanies lawfare, the author opts to focus merely on the exploitation of the rule of law. See Wouter G. Werner, *The Curious Career of Lawfare*, 43 CASE W. RES. J. INT'L L. 61, 61 (2010) (asserting that the term lawfare is used to attack an opponent's reliance on law and could eventually erode the integrity of the law). See generally Leila Nadya Sadat & Jing Greng, *On Legal Subterfuge and the So-Called "Lawfare" Debate*, 43 CASE W. RES. J. INT'L L. 153, 153 (2010) (asserting that the term lawfare undermines general respect for rule of law).

⁸ WILLIAM SHAKESPEARE, THE SECOND PART OF KING HENRY THE SIXTH, act 2, sc. 2, l. 71 (Rowel, Knowles ed., The Arden Shakespeare 1999).

⁹ Debbie Vogel, "Kill the Lawyers," *A Line Misinterpreted*, N.Y. TIMES (June 17, 1990), <http://www.nytimes.com/1990/06/17/nyregion/1-kill-the-lawyers-a-line-misinterpreted-599990.html> [<http://perma.cc/BYJ6-XL4C>].

As with any tool, UAS can be used for good or for bad. UAS can be used for hurricane hunting, crop dusting, building inspections, military uses, 3-D mapping, search and rescue, mail delivery, firefighting, photography, real estate, and much more.¹⁰ UAS have been, and will be, used for nefarious reasons, whether for surveillance, as bombs, or simply scare tactics.¹¹ UAS can also cause destruction from less nefarious and malevolent actors. These range from “drunken larks” around the White House¹² to accidentally threatening the lives of individuals on

¹⁰ See generally *2015 Drone Aerial Photography Contest Winners*, MSN (July 8, 2015), <http://www.msn.com/en-us/news/technology/2015-drone-aerial-photography-contest-winners/ss-AAcILNm> [<http://perma.cc/GWF2-4K9Y>] (using drones for photography); Kelsey D. Atherton, *NASA Is Testing a Drone for Mars*, POPULAR SCIENCE (July 7, 2015), <http://www.msn.com/en-us/news/technology/nasa-is-testing-a-drone-for-mars/ar-AAcDJzN> [<http://perma.cc/RUQ9-EKMG>] (using drones for space exploration); Brian Handwerk, *5 Surprising Drone Uses (Besides Amazon Delivery)*, NAT'L GEOGRAPHIC (Dec. 2, 2013), <http://news.nationalgeographic.com/news/2013/12/131202-drone-uav-uas-amazon-octocopter-bezos-science-aircraft-unmanned-robot/> [<http://perma.cc/DS52-3JXT>] (listing hurricane hunting, 3-D mapping, protecting wildlife, farming, and search and rescue); Kelsey Husnick, *Drone Giving Dublin Builder a Lift*, THE COLUMBUS DISPATCH (July 8, 2015), <http://www.dispatch.com/content/stories/business/2015/07/08/local-construction-company-using-drones-on-the-jobsite.html> [<http://perma.cc/WKE3-MFYM>] (using drones to inspect construction sites); Natalia Martinez, *Drones Used to Battle Whiskey Row Blaze*, WAVE 3 NEWS (July 7, 2015), <http://www.wave3.com/story/29497320/drones-fight-whiskey-row-fire> (using drone in Kentucky for firefighting); *Switzerland Begins Postal Delivery by Drone*, THE GUARDIAN (July 8, 2015), <http://www.theguardian.com/technology/2015/jul/08/swiss-post-begins-testing-postal-delivery-by-unmanned-drone> [<http://perma.cc/2JUM-TQJS>] (discussing mail delivery in Switzerland); White House Office of the Press Secretary, Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems (Feb. 15, 2015), <https://www.whitehouse.gov/the-press-office/2015/02/15/presidential-memorandum-promoting-economic-competitiveness-while-safegua> [<https://perma.cc/6VE6-RGTN>] (listing urban infrastructure management, farming, public safety, coastal security, military training, search and rescue, and disaster response).

¹¹ See generally *United States v. Khan*, 309 F. Supp. 2d 789, 801, 812–14 (E.D. Va. 2004) (explaining how a terrorist used UAS; see *infra* Section III.B); *Key Issues: Unmanned Aerial Systems (Drones)*, GOV'T ACCOUNTABILITY OFF., http://www.gao.gov/key_issues/unmanned_aerial_systems/issue_summary [<http://perma.cc/B4GX-DV2U>] (last visited Nov. 19, 2015) (noting that terrorist organizations as well as unfriendly states are seeking to use UAS technology).

¹² Even after the extensive “No Drone Zone” campaign, there have been two instances of UAS being flown around the White House. See Michael D. Shear & Michael S. Schmidt, *White House Drone Crash Described as a U.S. Worker's Drunken Lark*, N.Y. TIMES (Jan. 27, 2015), <http://www.nytimes.com/2015/01/28/us/white-house-drone.html> [<http://perma.cc/UBJ7-LN22>]; see also Michael S. Schmidt, *Secret Service Arrests Man After Drone Flies Near White House*, N.Y. TIMES

passenger planes.¹³ Although some of these situations can be considered funny, they still wasted resources and distracted agents from their core mission. The bottom line is that UAS are a tool that needs to be understood from both a technological and legal standpoint. The primary key to understanding the potential uses for UAS is first to understand how they may be legally used within the NAS. From that understanding, it is possible to create policies that will balance the free use of UAS for personal and commercial purposes against security and privacy concerns.

This article will first evaluate the current state of the law for use of UAS. It will then evaluate a few cases that could apply to the use of UAS. After establishing the current legal framework, the article will then apply the law to three scenarios: The first scenario will be UAS flight near a federal facility, the second will be UAS flight near a chemical facility, and the third will be UAS flight near a National Football League (NFL) game. The three scenarios were chosen to highlight the places where the law strongly protects critical infrastructure and where the law fails to do so. Lastly, this article will offer some potential solutions to strike a better balance within the law.

II. THE CURRENT LAW

The first part of this section will discuss the Federal Aviation Administration's Modernization and Reform Act of 2012¹⁴ (Act), which is the first time Congress required the Federal Aviation Administration (FAA) to regulate UAS.¹⁵ Section 332 of the Act requires the FAA to develop a comprehensive plan to safely integrate UAS.¹⁶ The second part of this section will describe proposed regulations for UAS, which the FAA published in February 2015. The proposed regulations only apply to small, com-

(May 14, 2015), http://www.nytimes.com/2015/05/15/us/white-house-drone-secret-service.html?_r=0 [<http://perma.cc/VVU7-282R>].

¹³ See Michael Larkin & Gadi Schwartz, *Drone Almost Hits Commercial Jet at 4,000 Feet at LAX*, NBC LOS ANGELES (Feb. 11, 2015), <http://www.nbclosangeles.com/news/local/Drone-Almost-Hits-Commercial-Jet-at-4000-Foot-at-LAX-291386471.html> [<http://perma.cc/KX2S-3BNB>]; *Drone Flies Too Close to Plane Landing at Charlotte Douglas*, CHARLOTTE OBSERVER (July 10, 2015), <http://www.charlotteobserver.com/news/local/article26955769.html> [<http://perma.cc/522L-BKLL>].

¹⁴ FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, 126 Stat. 11 (codified as amended at 49 U.S.C. §§ 40101-50105).

¹⁵ Gretchen West, *Drone on: The Sky's the Limit—If the FAA Will Get Out of the Way*, 94 FOREIGN AFFAIRS, no. 3, 2015, at 90-97.

¹⁶ FAA Modernization and Reform Act § 332(a)(1).

mercial UAS.¹⁷ The comment period closed at the end of April 2015, and the FAA is currently reviewing the comments and may alter the regulations due to those comments.¹⁸ Although the regulations may change slightly, it is valuable to understand the basic nature of the regulations because such nature gives insight into the FAA's views on the responsible uses for small, commercial UAS. The third part of this section will discuss in detail the definition of model aircraft in section 336 of the Act. It will also discuss how the FAA expects model aircraft to be flown in the NAS, even though section 336 prohibits the FAA from regulating model aircraft. As will be seen, the exclusion of model aircraft from FAA regulation has major impacts on security within the NAS and on the ground.

A. FAA MODERNIZATION AND REFORM ACT OF 2012

From a security perspective, one of the most important aspects of the Act is the exclusion of model aircraft from FAA regulations, even though the Act's definition for UAS should include model aircraft. Section 336 prohibits the Administrator from "promulgat[ing] any rule or regulation regarding a model aircraft, or an aircraft being developed as a model aircraft."¹⁹ The Act then lists five characteristics that must be met in order for UAS to be considered model aircraft. The characteristics include:

- (1) the aircraft is flown strictly for hobby or recreational use;
- (2) the aircraft is operated in accordance with a community-based set of safety guidelines and within the programming of a nationwide community-based organization;
- (3) the aircraft is limited to not more than 55 pounds unless otherwise certified through a design, construction, inspection, flight test, and operational safety program administered by a community-based organization;
- (4) the aircraft is operated in a manner that does not interfere with and gives way to any manned aircraft; and
- (5) when flown within 5 miles of an airport, the operator of the aircraft provides the airport operator and the airport air traffic control tower

¹⁷ Operation and Certification of Small Unmanned Aircraft Systems, 80 Fed. Reg. 9544, 9545 (proposed Feb. 23, 2015) (to be codified at 14 C.F.R. pts. 21, 43, 45, 47, 61, 91, 101, 107, 183) [hereinafter Small UAS Proposed Regulations].

¹⁸ The FAA received a total of 4,612 comments, with some received after the comment period closed. See *Operation and Certification of Small Unmanned Aircraft Systems*, REGULATIONS.GOV, <http://www.regulations.gov/#!docketDetail;D=FAA-2015-0150> (last visited Nov. 20, 2015).

¹⁹ FAA Modernization and Reform Act § 336(a).

(when an air traffic facility is located at the airport) with prior notice of the operation²⁰

The Act further defines model aircraft as unmanned aircraft that are “(1) capable of sustained flight in the atmosphere; (2) flown within visual line of sight of the person operating the aircraft; *and* (3) flown for hobby or recreational purposes.”²¹

The “and” is italicized in order to emphasize that all eight characteristics must be met for UAS to be considered model aircraft. If those characteristics are met, then the FAA cannot regulate their use or those flying the model aircraft.²² However, the FAA maintains the ability “to pursue [an] enforcement action against persons operating model aircraft who endanger the safety of the [NAS].”²³ Because the FAA maintains broad enforcement responsibility for protecting the safety of the NAS, reviewing the proposed regulations becomes even more important. The proposed regulations explain exactly what the FAA considers safe use of small UAS within the NAS. Thus, even though the regulations are limited to UAS used for commercial purposes, law enforcement can use the regulations as guidelines for what conduct is considered safe for the operation of UAS or model aircraft within the NAS.

B. PROPOSED REGULATIONS

This is the first rule the FAA has published governing use of small UAS for commercial purposes in the NAS since the Act was passed in 2012.²⁴ Small UAS are defined by the Act as weighing less than fifty-five pounds at the time of takeoff and used for commercial purposes.²⁵ Thus, if UAS are flown for recreational use, they are not covered by the regulations because they are considered model aircraft.

The basic requirements for the commercial use of small UAS are that the operator must be certified and the small UAS must be registered.²⁶ Additionally, the operator must follow the visual-line-of-sight and see-and-avoid rules, which require that the operator’s vision not be assisted by anything other than spectacles

²⁰ *Id.* (emphasis added) (internal quotations omitted).

²¹ *Id.* § 336(c) (emphasis added).

²² *See id.*

²³ *Id.* § 336(b).

²⁴ Small UAS Proposed Regulations, *supra* note 17, at 9545.

²⁵ FAA Modernization and Reform Act § 331(6).

²⁶ Small UAS Proposed Regulations, *supra* note 17, at 9545–46.

or contact lenses.²⁷ The operator may have the assistance of a visual observer as well, but even with a visual observer, the operator must maintain visual contact.²⁸ Small UAS must be flown during the daytime and must yield right of way to other aircraft.²⁹ Furthermore, small UAS may not fly in Class A airspace (18,000 feet and above).³⁰ UAS may fly in Class B, C, D, and E airspace with Air Traffic Control (ATC) permission, and in Class G airspace without ATC permission.³¹ Lastly, UAS may not be flown over humans or in any restricted airspace, as noted on the FAA's website.³²

The proposed regulations apply to very few UAS currently flying in the NAS because they only regulate small UAS that are used for a commercial purpose.³³ Due to the exclusion for model aircraft written into the Act, model aircraft remain unregulated, even though they share the same capabilities as small UAS used for commercial purposes. Thus, it is likely that a malevolent actor will choose to fly UAS as model aircraft, even if that requires lying in order to avoid applying for an operator's license, which requires a background check and registration of UAS with the FAA.

C. MODEL AIRCRAFT

1. *Definition of Model Aircraft Explained*

The FAA issued interpretations to assist individuals in understanding the characteristics that must be met in order to operate

²⁷ *Id.* at 9546.

²⁸ *Id.* at 9547.

²⁹ *Id.* at 9546, 9561.

³⁰ *Id.* at 9546, 9587.

³¹ *Id.* at 9546, 9587. There are two categories of airspace—regulatory and nonregulatory—and within the categories there are four types of airspace—controlled, uncontrolled, special use, and other airspace. See FAA, PILOT'S HANDBOOK OF AERONAUTICAL KNOWLEDGE 14-1 (2008), http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/pilot_handbook/ [<http://perma.cc/7WZ5-JK62>] (providing a comprehensive description of different airspace). Although the types of airspace in which small, commercial UAS can fly is interesting and impacts the protection of critical infrastructure, an in-depth analysis of this topic is beyond the scope of this article. Because it is more likely for a malevolent actor to treat his or her UAS as model aircraft, the focus of this article is on where and how model aircraft can be flown. See also Model Aircraft Interpretation, *infra* note 34, at 36,172 (noting that the FAA generally requests that model aircraft be flown below 400 feet).

³² *Unmanned Aircraft Systems*, FAA, <https://www.faa.gov/uas/> [<https://perma.cc/ST5S-ZXAY>] (last visited Nov. 20, 2015).

³³ Small UAS Proposed Regulations, *supra* note 17, at 9545.

UAS as model aircraft.³⁴ The FAA's interpretations focus on the requirements that the aircraft must be "flown within visual line of sight of the person operating the aircraft" and only for recreational use.³⁵ The interpretations only cursorily discuss the other characteristics.³⁶

The FAA interprets the visual line-of-sight characteristic as requiring the aircraft to be visible to the operator at all times with his or her own natural vision and prohibiting the operator from using anyone else to maintain visual line of sight.³⁷ The operator may use standard eyeglasses or contact lenses but cannot use anything more powerful, such as binoculars.³⁸ Additionally, the model aircraft operator must maintain a visual connection to the aircraft and cannot rely on technology.³⁹ A visual observer may be used to augment the operator's sight, but the operator must always maintain visual contact.⁴⁰ This closely mirrors the requirements in the proposed regulations for small, commercial UAS and is extremely important for law enforcement and homeland security officials.⁴¹ Assuming the individuals are abiding by the requirements, a law enforcement officer should be able to locate the operator of the model aircraft or UAS. Consequently, if the use of the model aircraft or UAS seems suspicious, the law enforcement officer should be able to approach the individual.

The model aircraft must also be flown for recreational use, which essentially means not for commercial use.⁴² In a way, Congress is requiring individuals to have fun while flying the model aircraft because there can be absolutely no nexus to any commercial endeavor. For example, if the operator is an artist, even if he or she does not directly receive money to take these particular pictures, the fact that the artist might be able to sell the aerial photographs could be considered a commercial use.⁴³ Moreover, using a model aircraft to merely examine a personal garden is recreational, but if a farmer uses an UAS to examine

³⁴ Interpretation of the Special Rule for Model Aircraft, 79 Fed. Reg. 36,172 (proposed June 25, 2014) (to be codified at 14 C.F.R. pt. 91) [hereinafter Model Aircraft Interpretation].

³⁵ *Id.*

³⁶ *Id.* at 36,173.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ Small UAS Proposed Regulations, *supra* note 17, at 9545–46.

⁴² Model Aircraft Interpretation, *supra* note 34, at 36,174.

⁴³ *Id.*

the crops he or she will sell at market, then such use will be commercial.⁴⁴

Additionally, Congress clearly stated that a community based organization means “a membership based association that represents the aeromodeling community within the United States [that] provides its members a comprehensive set of safety guidelines that underscores safe aeromodeling operations within the [NAS] and the protection and safety of the general public.”⁴⁵ However, an operator must join a membership association in order to be required to follow its guidelines. It would be better if hobbyists were required to register with the FAA, but membership in a model aircraft organization at least creates a record that could be subpoenaed by law enforcement.⁴⁶

The other characteristics are much more intuitive. The fifty-five pound requirement applies at the time of takeoff.⁴⁷ The model aircraft must not exceed fifty-five pounds, even with mounted gear, such as a camera.⁴⁸ However, if the model aircraft organization has “a set of safety guidelines that define a design, construction, inspection, flight test, and operational safety program,” a model aircraft constructed in accordance with these guidelines may exceed fifty-five pounds.⁴⁹ Another characteristic requires the operator to always give right of way to manned aircraft and give any airport prior notice before flying within five miles of the airport.⁵⁰

It is not difficult to maintain UAS as model aircraft. Legitimate users, the types of operators who will be flying model aircraft, are truly just hobbyists. However, it would not be

⁴⁴ *Id.*

⁴⁵ H.R. REP. NO. 112-381, at 199 (2012).

⁴⁶ In October 2015, the FAA announced that it will require model aircraft users to register with the government. The FAA hopes to create the registration system within the upcoming months; until then, it remains unclear what the registration requirements will be for model aircraft. See Craig Whitlock, *Federal Regulators to Require Registration of Recreational Drones*, WASH. POST (Oct. 19, 2015), https://www.washingtonpost.com/world/national-security/federal-regulators-to-require-registration-of-recreational-drones/2015/10/19/434961be-7664-11e5-a958-d889faf561dc_story.html. Additionally, it will be interesting to see if the model aircraft community challenges the new rule under section 336, which prohibits the regulation of model aircraft by the FAA. See FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 336(a), 126 Stat. 11 (codified as amended at 49 U.S.C. §§ 40101–50105).

⁴⁷ Model Aircraft Interpretation, *supra* note 34, at 36,174.

⁴⁸ *Id.*

⁴⁹ *Id.* at 36,175.

⁵⁰ *Id.*

surprising for a malevolent actor to lie in order to avoid the registration requirements of small UAS used for commercial use.⁵¹

2. Model Aircraft Organizations

It is important for homeland security officials to understand the standards that model aircraft organizations set for their members. If a hobbyist is not abiding by the standards, then he or she is no longer operating a model aircraft.⁵² One of the eight characteristics the Act requires for an aircraft to be classified as a model aircraft is that the aircraft must be “operated in accordance with a community-based set of safety guidelines and within the programming of a nationwide community-based organization.”⁵³ At the very least, the law enforcement officer should be able to request that the individual cease operating the UAS.⁵⁴

It will come as no surprise that there are several model aircraft organizations throughout the United States; however, most are either chapters of the Academy of Model Aeronautics (AMA) or follow AMA guidelines.⁵⁵ Consequently, this article will focus on the AMA, which claims to be the largest model aircraft organization in the world.⁵⁶ The AMA has several documents that guide members on best practices and required safety rules.⁵⁷ The rules generally follow the guidelines and regulations promulgated by the FAA but also contain requirements that are not required by regulation or statute.⁵⁸ For example,

⁵¹ See generally *United States v. Khan*, 309 F. Supp. 3d 789, 812–13 (E.D. Va. 2004) (finding that the defendant lied in order to buy a model aircraft to be used for surveillance by a terrorist organization).

⁵² See FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 336(a), 126 Stat. 11 (codified as amended at 49 U.S.C. §§ 40101–50105).

⁵³ *Id.*

⁵⁴ It is unclear what criminal charges could be brought against the individual. At the very least, law enforcement could refer the matter to the FAA for civil enforcement and penalties. This is an interesting conundrum that is beyond the scope of this article.

⁵⁵ See FAA, *AMA Work Together on Model Aircraft/UAS Safety*, FAA (Jan. 13, 2014), <http://www.faa.gov/news/updates/?newsId=75599> [<https://perma.cc/3TUD-2CLZ>].

⁵⁶ See *What is the AMA?*, ACAD. OF MODEL AERONAUTICS, <http://www.modelaircraft.org/aboutama/whatisama.aspx> [<http://perma.cc/EN76-2S8P>] (last visited Nov. 20, 2015).

⁵⁷ See generally *AMA Documents*, ACAD. OF MODEL AERONAUTICS, <http://www.modelaircraft.org/documents.aspx> [<http://perma.cc/6VMT-DWJM>] (last visited Nov. 20, 2015).

⁵⁸ One of the key requirements is the visual line of sight requirement. See “*See and Avoid*” Guidance, ACAD. OF MODEL AERONAUTICS, <http://www.modelaircraft.org>.

the AMA requires that model aircraft be identified with the name and address or the AMA number of the owner.⁵⁹ Model aircraft also cannot carry any pyrotechnic devices that burn or explode.⁶⁰

The AMA also has guidelines that permit members to fly radio-controlled model aircraft weighing more than fifty-five pounds.⁶¹ The Large Model Airplane Program allows model aircraft to weigh up to 125 pounds at takeoff.⁶² The AMA must give the operator a permit to fly large UAS.⁶³ The permit process requires a declaration by the builder, test flights, a preflight inspection before each flight, and a pilot with the requisite skill level.⁶⁴ Other than that, the operator only needs to follow the normal AMA guidelines.⁶⁵ There are no special rules for large model aircrafts during flight. Thus, the safety concerns are mostly focused on whether the large model aircraft is airworthy.

3. *FAA Requirements for Model Aircraft*

Simply because model aircraft are not subject to any future regulation by the FAA does not mean that model aircraft are outside the scope of enforcement actions taken by the FAA. Section 336(b) contemplates this by permitting the FAA “to pursue [an] enforcement action against persons operating model aircraft who endanger the safety of the [NAS].”⁶⁶ Thus, a model aircraft operator must protect the safety of the NAS and any property or people on the ground by following the general FAA

org/files/540-D.pdf [<http://perma.cc/Q4NW-D492>] (last visited Nov. 20, 2015). Even when using first person view capabilities, there must still be a visual line of sight. See ACAD. OF MODEL AERONAUTICS, AMA ADVANCED FLIGHT SYSTEMS COMMITTEE REPORT 101 (2013), <http://www.modelaircraft.org/files/AFSCREPORT101.pdf> [<http://perma.cc/98A9-MYUT>] (discussing the privacy concerns of First Person View (FPV) Systems).

⁵⁹ *Academy of Model Aeronautics National Model Aircraft Safety Code*, ACAD. OF MODEL AERONAUTICS (Jan. 1, 2014), <http://www.modelaircraft.org/files/105.pdf> [<http://perma.cc/4WEW-QT7X>].

⁶⁰ *Id.* (showing that there are a few exceptions to this anti-pyrotechnic rule for show and competition flights).

⁶¹ ACAD. OF MODEL AERONAUTICS, AMA RADIO CONTROL LARGE MODEL AIRPLANE PROGRAM (2015), <http://www.modelaircraft.org/files/520-a.pdf> [<http://perma.cc/7M5U-S9GF>].

⁶² *Id.* at 2.

⁶³ *Id.*

⁶⁴ *Id.* at 7, 10, 18.

⁶⁵ *Id.* at 2.

⁶⁶ FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 336(b), 126 Stat. 11 (codified as amended at 49 U.S.C. §§ 40101–50105).

regulations.⁶⁷ There are several sections of the FAA Regulations within the Code of Federal Regulations (CFR) that could apply to model aircraft.⁶⁸ Generally, the regulations detail how the aircraft may be operated, the rules for specific airspaces, and special restrictions (e.g. temporary flight restrictions (TFR) and notices to airmen (NOTAM)).⁶⁹ Thus, a general understanding of the FAA regulations is important for homeland security officials because it will help them determine when they can prevent the operation of a model aircraft.

Generally, the operation of the model aircraft cannot be reckless and objects cannot be released from the model aircraft.⁷⁰ Furthermore, the operator cannot cause damage to people or property.⁷¹ The aircraft should remain 500 feet away from structures and not fly at low altitudes in densely populated areas.⁷² The regulations also expect operators of model aircraft to be familiar with the requirements for operating in the different classes of airspace.⁷³ Some of those classes require authorization from ATC.⁷⁴ Lastly, before flying the operator needs to check the FAA's website for any TFRs or NOTAMs.⁷⁵

Additionally, the FAA has stated on its website that it generally expects model aircraft to: fly below four hundred feet; remain within visual line of sight; avoid flying near manned aircraft operations, stadiums, and people; weigh no more than fifty-five pounds; stay five miles away from airports unless given permission; and fly in a safe manner.⁷⁶

⁶⁷ Model Aircraft Interpretation, *supra* note 34, at 36,175–76.

⁶⁸ *Id.* at 36,173–75.

⁶⁹ *Id.* at 36,175.

⁷⁰ *Id.* at 36,175–76.

⁷¹ *Id.*

⁷² *Id.* at 36,175.

⁷³ *Id.* at 36,176.

⁷⁴ *Id.*

⁷⁵ The FAA orders NOTAMs and TFRs on a daily basis and for a variety of reasons, such as air shows, firefighting, accident investigation, special security reasons, hazards, and sporting events. See *Types of Temporary Flight Restrictions*, FAA, https://www.faa.gov/gslac/ALC/course_content.aspx?cID=42&sID=240&preview=true [<https://perma.cc/H4N5-8Q9V>] (last visited Nov. 20, 2015); *TFR List*, FAA, <http://tfr.faa.gov/tfr2/list.html> [<http://perma.cc/W7LT-BSXT>] (last visited Nov. 20, 2015) (providing a list of TFRs and NOTAMS).

⁷⁶ *Model Aircraft Operations*, FAA (Mar. 4, 2015, 1:17PM), http://www.faa.gov/uas/model_aircraft/ [<http://perma.cc/VF5N-MJK9>].

The FAA has also stated that it will rely on federal and state law enforcement to prosecute individuals criminally.⁷⁷ Because the FAA only has the authority to pursue civil enforcement procedures (e.g. fines), federal, state, and local law enforcement are the only means to pursue criminal investigations against the incorrect use of model aircraft or UAS.⁷⁸ Typical crimes include trespass, peeping tom-type crimes, and stalking.⁷⁹ Additionally, Federal Management Regulations can be used if the model aircraft damages a federal facility.⁸⁰ States have also begun to regulate UAS.⁸¹ However, it remains unknown how state regulation of UAS and model aircraft will fare in court. It is not a large leap to envision the AMA suing under the Supremacy Clause on behalf of their members if a state attempts to regulate model aircraft.

III. CASE LAW

There are very few published or reported cases regarding UAS or model aircraft; however this will change as the FAA integrates UAS into the NAS. The existing cases interestingly demonstrate the wide range of uses for which UAS have been employed, including recreation, photography, terrorism, and journalism. A basic understanding of the current case law will help homeland security officials learn the proper tactics to take when confronted with UAS or model aircraft. Furthermore, the

⁷⁷ *Law Enforcement Guidance for Suspected Unauthorized UAS Operations*, FAA, http://www.faa.gov/uas/regulations_policies/media/FAA_UAS-PO_LEA_Guidance.pdf (last visited Nov. 20, 2015).

⁷⁸ *FAA Compliance and Enforcement Program Order No. 2150.3B*, FAA (Oct. 1, 2007), http://www.faa.gov/documentLibrary/media/Order/FAA_Order_2150_3B_W-Chg_10.pdf [<http://perma.cc/R4JC-A2A9>].

⁷⁹ See Alissa M. Dolan & Richard M. Thompson II, *Integration of Drones Into Domestic Airspace: Selected Legal Issues*, CONG. RESEARCH SERV. 21, 29 (2013) (discussing trespass, peeping tom-type crimes, and stalking). It remains unknown how successful these prosecutions will be. For example, it is unclear if invading an individual's airspace could be considered a trespass. Additionally, anti-stalking laws have been notoriously weak or non-existent.

⁸⁰ What is the Policy Concerning the Preservation of Property?, 41 C.F.R. § 102-74.380(b) (2005).

⁸¹ See generally Monica J. Manzella & Gregory J. Favre, *Through the Looking Glass: Public Safety Agency Drone Policies and the Fourth Amendment*, CTR. FOR HOMELAND DEF. & SEC. (Mar. 2015), https://www.chds.us/?serve&dl&f=/Chds/resources/impact/Public_Safety_Drone_Policy.pdf [<https://perma.cc/873J-DTKR>] (unpublished academic research paper, United States Naval Postgraduate School); Alison Yakabe, *UAS on Main Street: Policy and Enforcement at the Local Level*, HOMELAND SEC. AFF. J. (2015).

case law can help policy makers in their attempts at finding the appropriate path to safely integrate UAS into the NAS.

A. RECREATION

A run-of-the-mill nuisance case illustrates the difficulty private individuals face when handling UAS or model aircraft issues on their own and highlights the need for government—federal or state—intervention. The Burgess family, which lived next to a plot of land that was leased by a model aircraft organization, found the constant humming extremely obnoxious.⁸² Unfortunately for the Burgesses, the court found that although the model aircraft annoyed them, their annoyance did not rise to the level of a nuisance.⁸³ A nuisance lawsuit is difficult to win because individuals generally have a right to use their land however they wish.⁸⁴ Thus, it will be difficult to use nuisance laws to protect critical infrastructure or even privacy rights of individuals.⁸⁵ It will take more than just common law civil suits to ensure the safety and privacy of a community.

In contrast to the Burgess family's attempt to use a civil suit to regulate model aircraft, the National Park Service (NPS) has had three successful cases regarding the use of UAS in Yellowstone National Park.⁸⁶ The NPS has declared all national parks "no drone zones," and will seek fines from anyone who uses UAS in a national park.⁸⁷ In one case, a gentleman flew his UAS over Midway Geyser Basin.⁸⁸ He pled guilty to flying his UAS in a re-

⁸² *Burgess v. Omahawks Radio Control Org.*, 362 N.W.2d 26, 29 (Neb. 1985).

⁸³ *Id.* at 30.

⁸⁴ *Id.* at 29.

⁸⁵ The case also included a claim that the model aircraft organization violated city zoning. That claim was not decided because the district court had not fully developed the record on that claim. *Id.* at 31. However, such allegation indicates that local governments might be able to curb the use of model aircraft and UAS through zoning.

⁸⁶ Press Release, National Park Service, Guilty Verdict in Third Yellowstone Unmanned Aircraft Case (Oct. 3, 2014), <http://www.nps.gov/yell/learn/news/14079.htm> [<http://perma.cc/23JD-V6RW>] [hereinafter Press Release, Guilty Verdict].

⁸⁷ Press Release, National Park Service, Unmanned Aircraft to be Prohibited in America's National Parks (June 20, 2014) <http://www.nps.gov/moru/learn/news/unmanned-aircraft-to-be-prohibited-in-americas-national-parks.htm> [<http://perma.cc/2QP7-C96T>]; Press Release, National Park Service, Yellowstone Enforcing Ban on Unmanned Aircraft Operation (Aug. 29, 2014), <http://www.nps.gov/yell/learn/news/14-067.htm> [<http://perma.cc/YLH4-27EF>].

⁸⁸ Press Release, Guilty Verdict, *supra* note 86.

stricted location and was charged \$1,000.⁸⁹ In another case, a gentleman was fined \$1,000 and ordered to pay over \$2,200 in restitution after he pled guilty to crashing his UAS into the Grand Prismatic Spring.⁹⁰ Finally, a gentleman pled guilty to crashing his UAS into Yellowstone Lake.⁹¹ He was banned from the park for one year, placed on unsupervised probation for one year, and ordered to pay \$1,600 in fines and restitution.⁹² This shows the importance of clear government policies regarding where and how individuals may use UAS or model aircraft. Furthermore, it highlights the fact that the FAA is not the only federal agency that should be involved in creating policies that define how UAS may be used.

B. TERRORISM

The only existing criminal case arose when Masoud Khan was prosecuted for a series of terrorism-related crimes.⁹³ One of Khan's crimes involved providing material support to the terrorist organization, Lashkar-e-Taiba (LET).⁹⁴ Khan bought for LET an airborne video system that included a camera and transmitter that permitted LET to transmit video images from as far as fifteen miles away.⁹⁵ He also bought an airplane control module, which is a stability and control computer that can be "programmed to fly an airplane with a 10–12 foot wingspan using Global Positioning System (GPS) coordinates. The unit controls altitude, speed, and navigation to programmed waypoints, and can also be programmed to turn a video camera on and off when the airplane reaches certain locations."⁹⁶ What is most disturbing, from a homeland security perspective, is that everything Khan purchased was perfectly legal. Khan's actions became a crime only when Khan sent the model aircraft and video system to a terrorist organization.⁹⁷ Furthermore, in the eleven years since the case, it is still simple and legal to buy UAS with advanced surveillance capabilities.⁹⁸

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ *United States v. Khan*, 461 F.3d 477, 483 (4th Cir. 2006).

⁹⁴ *Id.* at 484.

⁹⁵ *United States v. Kahn*, 309 F. Supp. 2d 789, 813 (E.D. Va. 2004).

⁹⁶ *Id.*

⁹⁷ *Id.* at 814.

⁹⁸ Model Aircraft Interpretation, *supra* note 34, at 36,173.

What is most promising about this case is that an employee of the company that produced the video system was suspicious of Khan's actions.⁹⁹ Even though she was not required to conduct due diligence on a domestic purchase, she required Kahn to answer export control questions on the order form.¹⁰⁰ Because she did not find his name on a list of prohibited purchasers, the transaction was permitted.¹⁰¹ However, the extra questions she asked Khan helped in his prosecution.¹⁰² This shows the importance of constant community engagement and training, especially in companies and organizations that handle UAS or model aircraft.

C. JOURNALISM

The most recent case, *Rivera v. Foley*, decided on March 23, 2015, involved a section 1983 claim by a journalist.¹⁰³ Pedro Rivera, the plaintiff journalist, claimed that several police officers in the Hartford Police Department violated his First and Fourth Amendment rights.¹⁰⁴ Rivera heard on a police scanner that there was a terrible automobile accident.¹⁰⁵ He went to the sight of the accident and began flying his personally owned UAS over the accident site, which included hovering over the area that officers had identified as the crime scene.¹⁰⁶ Rivera used his UAS to record aerial images of the accident scene for a local television station.¹⁰⁷ When the officers "demanded that he cease operating the [UAS] over the accident site and leave the area," Rivera complied.¹⁰⁸

A section 1983 claim is a lawsuit filed under 42 U.S.C. § 1983. Section 1983 allows for citizens to sue government officials for the deprivation of their rights.¹⁰⁹ Because a section 1983 claim allows for a citizen to sue government officials in their individual capacity, the official may use qualified immunity as an absolute

⁹⁹ *Kahn*, 309 F. Supp. 2d at 813.

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.* at 814.

¹⁰³ *Rivera v. Foley*, No. 3:14-cv-00196, 2015 WL 1296258, at *1 (D. Conn. Mar. 23, 2015).

¹⁰⁴ *Id.* at *2.

¹⁰⁵ *Id.* at *1.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.* at *2.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* at *1.

defense.¹¹⁰ The qualified immunity analysis involves a two-part inquiry to determine when such immunity bars a suit against government officials.¹¹¹ First, the court must determine whether “the facts alleged show the officer’s conduct violated a constitutional right.”¹¹² If so, the second inquiry asks “whether the right was clearly established, such that it would be clear to a reasonable officer that his conduct was unlawful in the situation he confronted.”¹¹³ Thus, this particular case does not determine if there is a constitutional right to use UAS for journalistic purposes. *Rivera* only determined if, at the time of the incident, there was a clearly established constitutional right that the officers unreasonably violated.¹¹⁴

Moreover, the court dismissed *Rivera*’s Fourth Amendment claims against the officers because “[p]laintiff’s operation of an unusual and likely unidentified device into a cordoned-off area at the scene of a major motor vehicle accident and ongoing police investigation provides arguable reasonable suspicion that Plaintiff was interfering with police activity.”¹¹⁵ Thus, the police officers could conduct a *Terry* stop and ask *Rivera* questions.¹¹⁶ This will be extremely important for police officers when they confront individuals using UAS or model aircraft near critical infrastructure. However, *Rivera* flew the UAS over a crime scene; therefore, it remains unclear whether the court would reach the same conclusion if *Rivera* simply flew his UAS near the crime scene. Furthermore, if the prediction of a large increase in UAS use is true, then it may be difficult in the coming years to claim that operating UAS is “unusual.”

As explained earlier, this case does not determine whether there is a First Amendment right to UAS use. Rather, the court asked if, at the time of the incident, there was a clearly established right to record police activity and a right to assemble at the accident site.¹¹⁷ The court, in this instance, dismissed both

¹¹⁰ *Id.*

¹¹¹ *Id.* at *2.

¹¹² *Id.* at *6.

¹¹³ *Id.*

¹¹⁴ *Id.* at *13.

¹¹⁵ *Id.* at *8.

¹¹⁶ *Id.* at *11, *12 (citing *Terry v. Ohio*, 392 U.S. 1, 21 (1968), which permits law enforcement officers to stop an individual if the law enforcement officer has a reasonable suspicion that an individual is doing something wrong).

¹¹⁷ *Id.* at *11.

claims.¹¹⁸ There is not a clearly established right to record police activity.¹¹⁹ In fact, the circuit courts are currently split on this question.¹²⁰ The First, Seventh, Ninth, and Eleventh Circuits have held that the First Amendment does protect the photography and recording of police officers engaged in their official duties.¹²¹ However, the Third and Fourth Circuits have held that this is not protected activity.¹²² However, for the purposes of the *Rivera* case, because the Second Circuit has not made a determination regarding this issue, the right to record police officers' actions was not clearly established.¹²³ For law enforcement officers, it will be important to know which jurisdiction they are acting in and to err on the side of caution when an individual is recording their actions. This issue is ripe for Supreme Court review, and a case may arise in the context of a journalist's use of UAS.

For the right to assemble, the court assumed that the plaintiff could assert a clearly established right and found that the officers did not violate that right.¹²⁴ The plaintiff attempted to access a prohibited area (the cordoned off accident scene) and behaved in a manner that was likely to disrupt the investigation.¹²⁵ Thus, it was perfectly reasonable for the officers to ask the plaintiff to cease and disperse from the scene.¹²⁶ Even in a First Amendment context, police officers may act to protect a crime scene from UAS use. Therefore, it may be possible, if an individual attempts to fly UAS into a prohibited area of critical infrastructure, for an officer to ask the individual to cease and disperse.

¹¹⁸ *Id.* at *10. The case also discussed First Amendment retaliation and prior restraint claims. Those claims arose due to the officer's actions the next day. One of the officers called Rivera's employer and spoke to his supervisors about how Rivera compromised the integrity of the accident scene. After the phone call, Rivera was suspended from work. As those claims stem from the officer's phone call to Rivera's employer, they will not be discussed in this article. *Id.* at *10–13.

¹¹⁹ *Id.* at *9.

¹²⁰ *Id.*

¹²¹ *Id.*; see generally *Glik v. Cunniffe*, 655 F.3d 78, 85 (1st Cir. 2012); *Am. Civ. Liberties Union v. Alvarez*, 679 F.3d 583, 600 (7th Cir. 2012); *Smith v. City of Cumming*, 212 F.3d 1332, 1333 (11th Cir. 2000); *Fordyce v. City of Seattle*, 55 F.3d 436, 442 (9th Cir. 1995).

¹²² See generally *Kelly v. Borough of Carlisle*, 622 F.3d 248, 262–63 (3d Cir. 2010); *Szymecki v. Houck*, 353 Fed. App'x 852, 853 (4th Cir. 2009).

¹²³ *Rivera*, 2015 WL 1296258, at *9.

¹²⁴ *Id.* at *11.

¹²⁵ *Id.*

¹²⁶ *Id.*

Another example of a journalistic use of UAS is *Huerta v. Pirker*.¹²⁷ In *Pirker*, the FAA claimed that Pirker operated his UAS in a reckless manner.¹²⁸ Pirker was paid to fly his UAS over the University of Virginia's campus to photograph it.¹²⁹ Although this case occurred before the proposed regulations were published, the facts of the case give insight into what the FAA may classify as reckless behavior for model aircraft as well as UAS.¹³⁰ Pirker operated his UAS in altitudes ranging from ten feet to 1,500 feet above ground level.¹³¹ At one point the UAS flew directly towards an individual standing on a sidewalk, which caused the individual "to take immediate evasive maneuvers[.]"¹³² He also flew it "under a crane, below tree top level over a tree lined walkway, under an elevated pedestrian walkway[,]. . . within approximately 100 feet of an active heliport[.]" and through a tunnel containing traffic.¹³³ While no one was hurt during Pirker's flight, this case highlights the FAA's attitude on how UAS should not be operated. The FAA and model aircraft organizations echo this attitude by strongly encouraging operators to fly UAS and model aircraft away from populated areas and 500 feet away from structures.¹³⁴ Pirker violated both of these rules.¹³⁵

IV. SCENARIOS

With so little case law examining the use of UAS and model aircraft, it is imperative for homeland security experts and law enforcement officers to work through their own scenarios. Applying the Act, regulations, and what little case law there is to hypotheticals will give officers a basic understanding of how to handle UAS or model aircraft before that officer encounters UAS or model aircraft operators for the first time. Additionally,

¹²⁷ No. EA-5730, 2014 WL 8095629 (N.T.S.B. Nov. 17, 2014).

¹²⁸ *Id.* at *1.

¹²⁹ *Id.*

¹³⁰ The case was settled for \$1,100 before the court evaluated whether Pirker operated his UAS in a reckless manner; thus, it is uncertain whether the National Transportation Safety Board (NTSB) would agree with the FAA's position. See Jack Nicas, *U.S. Federal Aviation Administration Settles with Videographer Over Drones*, WALL ST. J. (Jan. 22, 2015), <http://www.wsj.com/articles/u-s-federal-aviation-administration-settles-with-videographer-over-drones-1421960972>.

¹³¹ *Huerta*, 2014 WL 8095629, at *1.

¹³² *Id.*

¹³³ *Id.* (internal quotations omitted).

¹³⁴ *Id.* at *3.

¹³⁵ See *id.* at *1.

a policy will be better written if policymakers first work through how the current set of statutes, regulations, and policies control the actions taken by law enforcement. Although the three scenarios below are by no means exhaustive, they highlight gaps in the laws and regulations as well as where the laws and regulations can be used to the officers' advantage.

A. SCENARIO ONE—FEDERAL FACILITIES

An individual claims to fly a model aircraft around a federal courthouse outside of the National Capitol Region. The model aircraft has a high-powered video camera attached to it that the operator can control from the ground. A law enforcement officer sees the UAS and, after further investigation, determines that the individual operating the model aircraft is standing on a public sidewalk within visual line of site of the model aircraft. The individual is flying the UAS below 400 feet and keeps the UAS roughly 500 feet away from the federal facility and other structures in the area.

First, the First Amendment permits an individual standing on public ground to photograph a federal facility.¹³⁶ Furthermore, there are no standing TFR or NOTAM that prohibit aircraft from flying over or around federal facilities or courthouses. Additionally, the individual is flying the UAS as the FAA requires. Therefore, the officer may, at most, approach the individual to ask general questions, but the officer may not ask the individual to stop flying the model aircraft.

This highlights a major gap in the laws and regulations concerning the use of model aircraft and UAS. Technology currently permits individuals to mount high-powered cameras with the capability of videotaping miles away. Older cameras only permitted individuals to conduct surveillance on the outside of the building. Today, it is possible for malevolent actors to conduct surveillance on the outside of the building, the inside of the building, and the movements and actions of persons inside

¹³⁶ Stipulation and Order of Dismissal, *Musumeci v. U.S. Dept. of Homeland Security*, 10-cv-03370-RJH-JLC (2010), http://www.nyclu.org/files/releases/Final_Stip_and_Order_10.18.10.pdf; FED. PROTECTIVE SERV., U.S. DEP'T OF HOMELAND SEC., FPS BULL. NO. HQ-IB-012-2010, PHOTOGRAPHING THE EXTERIOR OF FEDERAL FACILITIES (2010), <http://www.photoattorney.com/wp-content/uploads/2011/02/Photographing-the-Exterior-of-Federal-Buildings.pdf> [<http://perma.cc/NX8U-38QK>] (providing that "the public has a right photograph the exterior of federal facilities from publicly accessible spaces such as streets, sidewalks, parks and plazas).

the building.¹³⁷ This same scenario can be applied to individuals conducting surveillance on other critical infrastructure, such as bridges and state and local buildings. As a result of the inadequacy of current laws, regulations, and case law, law enforcement officers lack the necessary tools to adequately protect critical infrastructure from illegal surveillance by model aircraft and UAS.

B. SCENARIO TWO—CHEMICAL FACILITIES

An individual flies, as he claims, a model aircraft over a chemical facility. The operator flies the UAS according to FAA guidelines for model aircraft—below 400 feet and 500 feet from any structures.¹³⁸

Chemical facilities are not protected by NOTAMs or TFRs; therefore, nothing prohibits aircraft from flying over chemical facilities. As discussed in Scenario One, there is nothing to stop a malevolent actor from conducting surveillance on the facility to find its weaknesses. A malevolent actor could also drop enough explosives on the facility to cause a major explosion. Although authorities would be able to prosecute the individual once the facility is damaged, there would be nothing to permit authorities to prevent the explosion.¹³⁹ It would not take much to create an explosion at a chemical facility. The UAS could be loaded with a small amount of explosives, lit, and flown directly into the plant. With the right type of chemical, the plant would explode. The harm caused by the explosion would depend on where the plant was located. Like Scenario One, the laws, regulations, and case law do not give law enforcement sufficient tools to prevent this type of catastrophe once the model aircraft be-

¹³⁷ Currently, wireless video add-ons can transmit real-time video at a three-kilometer (roughly one mile) range. It is possible to expand this range to fourteen kilometers (roughly eight miles) with additional equipment. See Tyler Hite, *Domestic Presence in the Skies: Why Americans Should Care About Private Drone Regulation*, 31 SYRACUSE J. SCI. & TECH. L. REP. 184, 190 (2015).

¹³⁸ See Model Aircraft Interpretation, *supra* note 34, at 36,172, 36,175.

¹³⁹ This scenario is not out of the realm of possibility. In 2012, Rezwan Ferdaus pled guilty to terrorism charges. He planned to bomb the Pentagon and the Capitol with model aircraft. He was arrested when he attempted to buy the necessary explosives. See Michael Muskal, *Man to Plead Guilty in Plot to Bomb D.C. Targets via Model Planes*, L.A. TIMES (July 10, 2012), <http://articles.latimes.com/2012/jul/10/nation/la-na-nn-massachusetts-man-to-plead-guilty-terror-charges-20120710> [<http://perma.cc/DL2V-ZBD6>]. It is unclear how successful this plot would have been had Ferdaus not been detected by the FBI, but this case shows that terrorists are already considering the usefulness of UAS in carrying out their terrorist operations.

gins its journey. Law enforcement's best solution is to catch the individual early enough in the planning to prevent the aircraft from ever leaving the ground.

C. SCENARIO THREE—MONDAY NIGHT FOOTBALL

An individual wishes to fly a model aircraft over a stadium as a NFL game is played. This individual could be stopped immediately. There is a standing NOTAM that begins one hour before and lasts until one hour after every NFL, Major League Baseball, and NCAA Division I Football game.¹⁴⁰ This is the perfect example of how NOTAMs can be used to greatly increase the security of specific areas within the NAS. This Scenario is also in stark contrast to the first two scenarios. Federal facilities and chemical facilities are not granted the same protections as major sporting events. It is extremely important to protect crowded areas, but the same sensitivity should be applied to all critical infrastructure.

V. CONCLUSION

At this point, any potential next steps are suggestions, at best, because there are still too many unknowns. The three scenarios highlight the difficulties involved in protecting critical infrastructure and society at large from UAS used by malevolent actors. There must be a balance between a workable NAS that permits the free flow of all aircraft and people and one that protects individuals and communities on the ground. Where that balance lies will be discovered as UAS are further introduced into the NAS. Currently, governments, authorities, and individuals are discovering that balance by, as Patrick Lagadec phrased it, "navigating the unknown."¹⁴¹ Although decision makers are navigating in new airspace, this does not mean that they need to entirely recreate the wheel. The best answer will be a mix of, as Lagadec outlines, "anticipating, detecting, reacting, inventing and mobilizing."¹⁴²

The first line of defense will always be good, old-fashioned police work. Two cases of terrorist activity were foiled because law enforcement stopped the individuals before they could com-

¹⁴⁰ NOTAM 4/3621, FAA (Oct. 27, 2014), http://tfr.faa.gov/save_pages/detail_4_3621.html [<http://perma.cc/DJ4H-DJHD>].

¹⁴¹ PATRICK LAGADEC, NAVIGATING THE UNKNOWN: A PRACTICAL LIFELINE FOR DECISION-MAKERS IN THE DARK (Peter Leonard trans., 2013).

¹⁴² *Id.* at 2.

mit the ultimate acts of destruction. Rezwan Ferdaus was prohibited from flying his UAS into the Pentagon and the Capitol and Masoud Khan was prohibited from giving more support to terrorist organizations because law enforcement was able to detect their illegal activity.¹⁴³ Thus, some of our current methods still work even when UAS are mixed into the scenarios.

It is also possible to use current tools in new ways. The FAA currently uses NOTAMs and TFRs for national security purposes. The FAA could begin to create a special class of NOTAMs and TFRs specifically for UAS and model aircraft. Two examples of these special classes would cover chemical facilities and federal facilities. This would allow for the free flow of passenger airplanes in the NAS, while simultaneously prohibiting the bigger harm posed by UAS. This idea is not new. After 9/11, several NOTAMs and TFRs were created for chemical facilities for national security reasons.¹⁴⁴ They have since been lifted, but such NOTAMs and TFRs are not unprecedented.¹⁴⁵

Community engagement, another tried and true tool, can assist decision makers as well. As the *Khan* case highlights, normal people doing their jobs can often be the first line of defense against malevolent actors.¹⁴⁶ Full engagement with the sellers of UAS and their numerous add-ons will ensure that those sellers are just as alert as law enforcement. Additionally, full engagement with model aircraft organizations will also be necessary. The FAA already has a good relationship with many of these organizations, especially the AMA. It would be beneficial for all parties to leverage this relationship to give regular training to the organizations' members on the need to be careful around critical infrastructure and to be alert for malevolent actors.

Lastly, it may be possible for local governments to regulate UAS or to use zoning laws to protect some of their critical infrastructure. However, it will be interesting to see if zoning laws or other regulations would be prohibited under the Supremacy Clause of the Constitution. Many states have already begun reg-

¹⁴³ Muskal, *supra* note 139.

¹⁴⁴ Michael W. Brown, *Airspace Obstacles and TFR Trivia: A Pilot's Guide to Understanding Restrictions in Today's National Airspace System*, FAA AVIATION NEWS 2 (Nov.-Dec. 2003), https://www.faa.gov/pilots/safety/notams_tfr/media/tfrweb.pdf [<https://perma.cc/7WRG-CAEE>].

¹⁴⁵ *Id.*

¹⁴⁶ See *United States v. Khan*, 309 F. Supp. 2d 789, 813 (E.D. Va. 2004) (providing that employee required Kahn to answer export control questions on order form, even when not required to do so).

ulating the use of UAS on their own land, and the FAA fully supports the states in that endeavor.¹⁴⁷

It will take a combination of familiar tactics and new ideas to find the right balance between the free use of UAS and national security. It will also take a combined effort between federal and local law enforcement and the private sector. By fully implementing available tools and encouraging cooperation between federal, state, and local governments and the private sector, it is possible to create a safe NAS that protects critical infrastructure and privacy. Soon it will be possible to no longer feel like we are flying in the dark with UAS. But, a concerted effort is required to strike a balance and that balance will need to be continually recalibrated as UAS technology evolves.

¹⁴⁷ Yakabe, *supra* note 81.

Comments

